

Good Morning



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Data Quality in the Montana Water Rights Information System

Department of Natural Resources and Conservation





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Water Rights in Montana

- Landowners can obtain a water right through DNRC to put water to a beneficial use.
- Beneficial uses include:
 - Household
 - Irrigation
 - Livestock
 - Others
- There are about 400,000 water rights in Montana.



Water Rights Information System (WRIS)

- Electronic database storing information on all water rights.
- Used by
 - DNRC
 - The Water Court
 - Public
- DNRC also stores all paper water right documents with a vendor.



Water Right Record

- Priority Date
- Purpose
- Point of Diversion
- Place of Use
- Ownership



Owner: State of Montana
Priority Date: April 15th, 1951
Source: Yellowstone River

Purpose: Irrigation
Volume: 320 Acre-Feet
Maximum Flow Rate: 4,500 GPM

Water Right Breakdown



July 1st, 1973

Statement of Claim

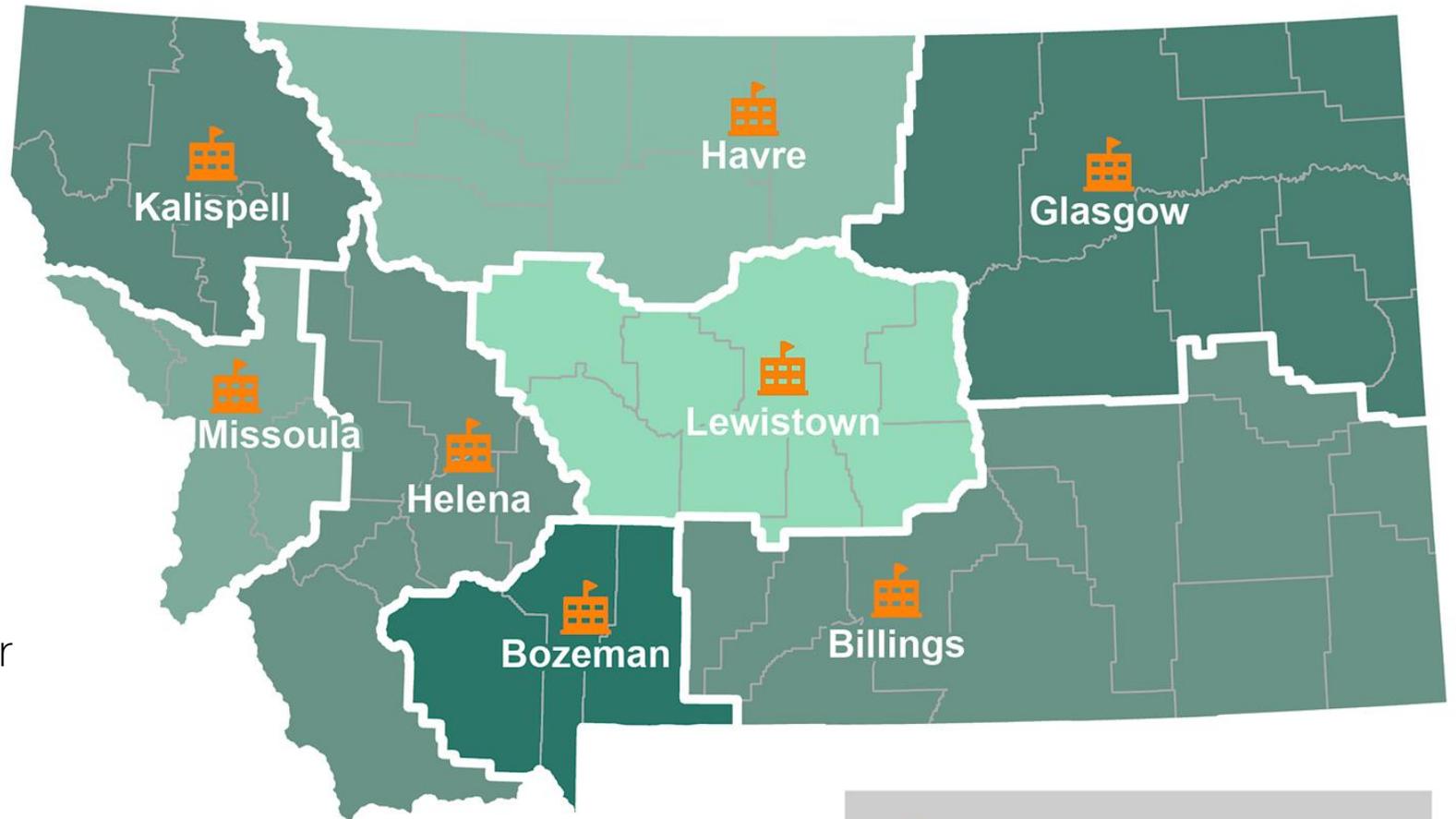
The Montana Water Court adjudicates older water rights, perfecting rights by basin and setting the historical record as of July 1, 1973.

New Appropriations

New water rights are administered by the department through a permitting process.

Water Resources Regions

- DNRC has 8 Regional Offices across the state, with a central office in Helena.
- Each Regional Office is responsible for processing water rights in its region.
- Each Regional Office has a manager and 4-8 FTE.



Objective

Determine the quality of the water right record data housed in the Water Rights Information System.



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Examined Consistency



Surveyed Water Right Owners



Visited Water Rights in Helena Area

Consistency



Water Right Information

Water right information was over 90 percent consistent between the WRIS and the paper record.



Missing Information

Information was more often missing from the paper record than the WRIS.



Scanned Documents

Over 95 percent of important water right documents are scanned and accessible by the WRIS.

Survey

We asked owners to verify

- Priority Date
- Purpose
- Owner(s)
- Place of Use
- Point of Diversion
- Geocode(s)



Over 90% of respondents marked the purpose and ownership correct



20% of respondents did not know if the priority date, place of use, point of diversion, or geocode was correct



16% Return Mail

Site Visits

- Owners were a valuable source of verification – if they understood water rights.
- We found errors that could not be identified without observing water usage.



Conclusion

- High levels of consistency between the WRIS and paper record.
- The WRIS is generally higher quality than the paper record.
- However, survey responses and physical site visits revealed data quality limitations.
- We identified methods to improve accuracy and quality assurance in the WRIS.



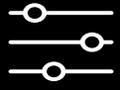
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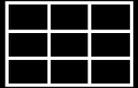
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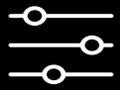
DNRC verifies information as it is entered into the WRIS and tracks property transfers with DOR.



However, DNRC relies on owners for ongoing quality assurance.



DNRC does not have a consistent strategy for tracking data quality.



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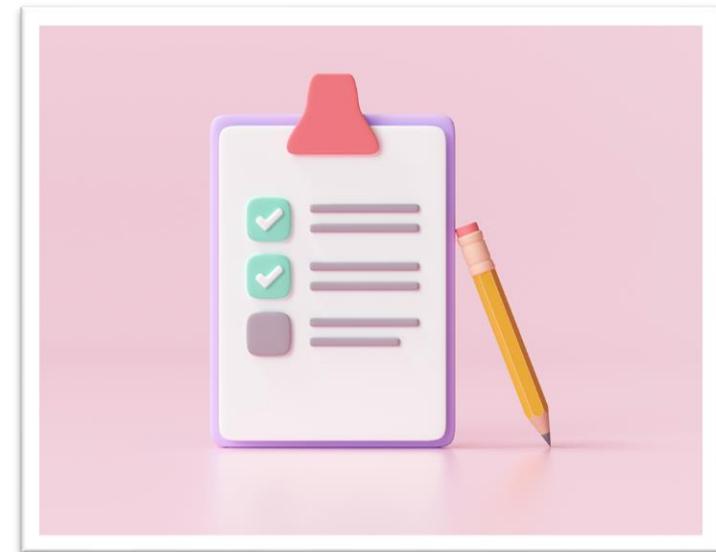
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DNRC does not have a consistent strategy for tracking data quality.

BEST PRACTICE

Establish a formalized data quality strategy



Recommendation #1

We recommend the Department of Natural Resources and Conservation establish and implement a data quality strategy for the Water Rights Information System that defines desired levels for data quality that are regularly evaluated.

Department: Concur

Education and Outreach



The Department has not Formalized Outreach



Owner Misunderstandings Create More Work



Owners Want Reminders of Their Information



Kalispell Regional Office

**40-60% Faster
Processing than
Average in 2019-2020**

**Most Ownership
Updates Processed
in 2020**

**Attributes Efficiency
to Outreach and
Education**

Recommendation #2

We recommend the Department of Natural Resources and Conservation establish an ongoing process for outreach and education including:

- A. Developing professional relationships with title companies and realtors to facilitate greater understanding of water right processes and information, and
- B. Developing a system for owners to sign up for regular reminders regarding their water right information

Department: Concur



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DNRC Maintains a Paper Record and the electronic WRIS



\$91,000 for Paper Storage Costs in Fiscal Year 2022



Official Record not Widely Understood Across Department



Electronic Processes Increase Efficiency

Recommendation #3

We recommend the Department of Natural Resources and Conservation establish the Water Rights Information System as the official record and transition to electronic processes by:

- A. Ensuring historical documents are scanned at acceptable quality,
- B. Creating an online submission option for all applications and updates,
- C. Tracking additional owner contact information electronically such as e-mail address, phone number, etc.

Department: Conditionally Concur

Scanned Documents

- Scanned files are generally only identified by two labels: “file” and “update to file”
- Scan files can also contain many water right documents.
- The Water Court finds scanned files difficult to use.
- Best practices emphasize expanding identifying information for scanned files.



Uploading Electronic Files

DNRC does not have a process to directly transfer electronic files internally from the regional offices or from The Water Court. Instead, electronic files must be printed or stored on a physical device (such as a CD or flash drive) and sent to the central office.



No Method for Electronic Transfer

Recommendation #4

We recommend the Department of Natural Resources and Conservation make scanned documents and their processes more functional by:

- A. Establishing an electronic means to transfer documents for upload, both internally and from the Water Court, and
- B. Attaching additional labelling and identifying information to uploaded documents.

Department: Conditionally Concur

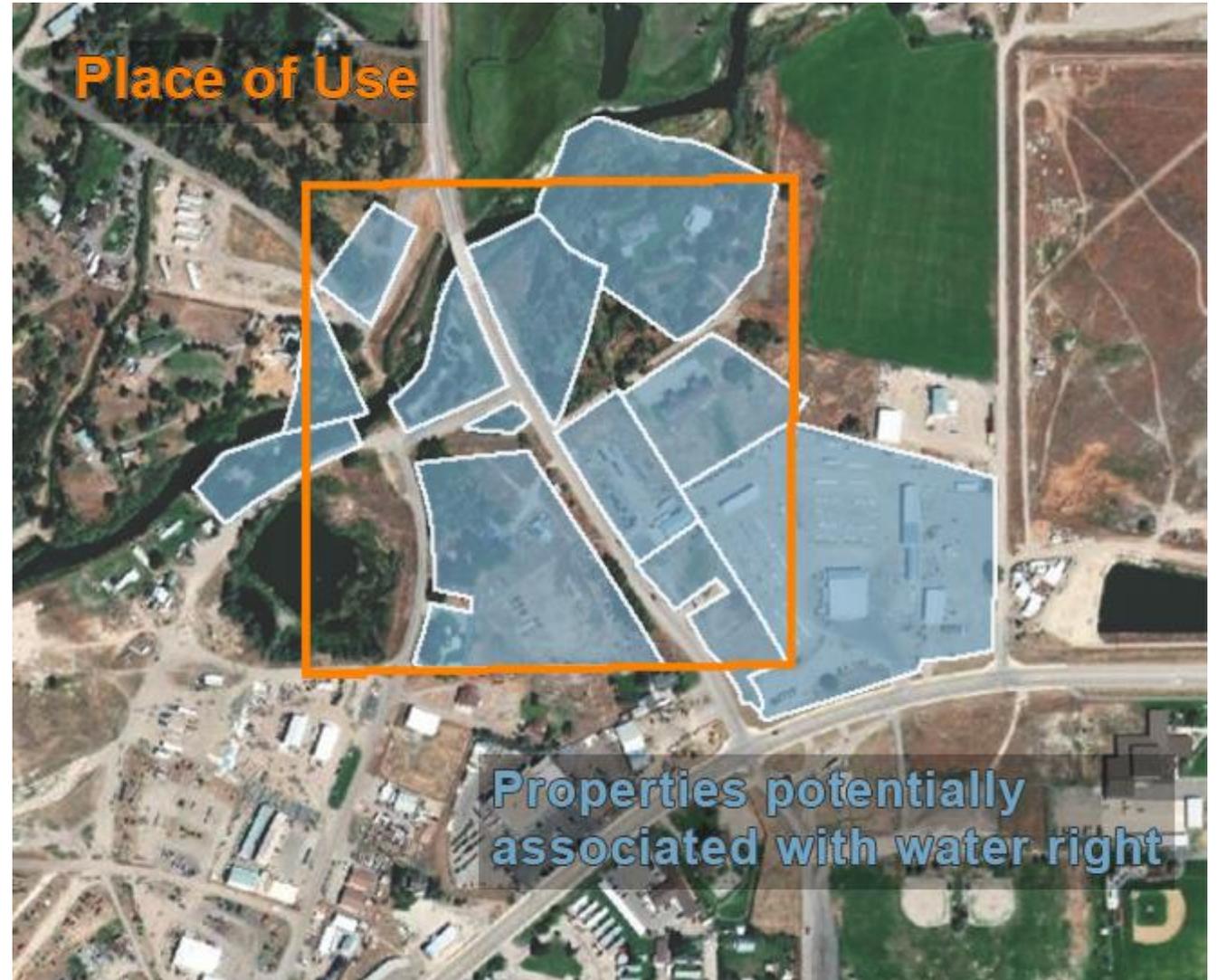
Maps

- The Department uses maps throughout water right processes.
- Administrative Rule specifies that quarter sections describe water right locations.
- DNRC uses a GIS application internally.

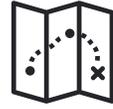


Effects of Scanned Maps and Quarter Sections

- 10-20% of all water rights have a scanned map where locations are not identifiable.
- 20-25% of survey respondents did not know if their quarter section locations were correct.
- 2.5 acres is the smallest area marked by quarter sections.



GIS Integration



DNRC Previously Created a GIS Interface for the Public



Other States Find GIS Integration Beneficial



DNRC Believes GIS Integration Would Be Cost Effective

Recommendation #5

We recommend the Department of Natural Resources and Conservation integrate GIS functionality for stakeholders by:

- A. Introducing a map interface for electronic applications and queries, and
- B. Using additional identifiers for the place of use and point of diversion.

Department: Concur



Thank You!

Happy to Answer Questions